Introduction

This medication competency paper has been designed by Code Blue Education to assess Division 1 nurses on their competency in relation to the calculation and the safe administration of medications.

While every institution will have its own polices and guidelines in place for the safe administration of medications, calculating correct dosages and the safe administration of these products, this is a standard nursing practice.
While this paper aims to assess these competencies, individuals must make themselves aware of the current polices and practices pertaining to the institution they are working in.

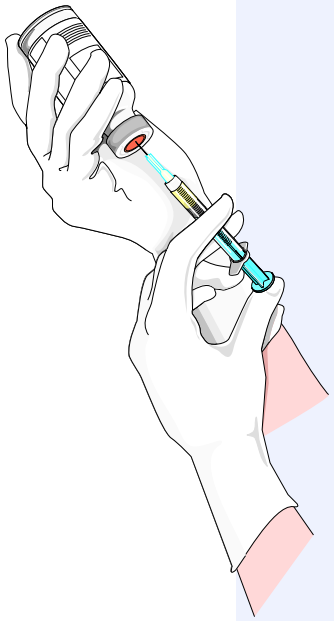
When completed this paper must be returned to Code Blue Nurses.
Please post the completed document to:
Code Blue Nurses,
P.O Box 7176,
Dandenong, VICTORIA 3175.

The paper will be marked by the Course Coordinator for Code Blue Education, and the results along with this examination paper filed with nurses personal file.

Any feedback regarding this paper is greatly appreciated.

Contact dave@codeblue.com.au

Prior to administering any medications remember:



Right Patient
Right Drug
Right Dose
Right Route
Right Time

Oral and Injected Formula

The following formulas are required to complete this medication competency.

$$\text{Volume Required} = \frac{\text{Strength Required}}{\text{Stock Strength}} \times \frac{\text{Volume of Stock}}{1}$$

$$\text{Volume Required} = \frac{\text{Strength Required}}{\text{Stock Strength}}$$

$$\text{Drip rate (dpm)} = \frac{\text{Volume (ml) x drops/ml}}{\text{Time (hours) x 60}}$$

When using the above formula ensure you use the correct value for the giving set you are going to use. Drip sets come as 20 drops/ml, 15 drops/ml, or 60 drops/ml. Check the packaging before you begin calculating.

$$\text{Volume (ml)} = \text{Rate (ml/hour)} \times \text{Time (hours)}$$

$$\text{Time (hours)} = \frac{\text{Volume (ml)}}{\text{Rate (ml/hour)}}$$

$$\text{mcq/kg/min} = \frac{\text{mg}}{\text{volume}} \times \frac{\text{1000 (conversion to mcq)}}{\text{60 (minutes)}} \times \frac{1}{\text{kg (patient weight)}}$$

Multiply Hours x 60 (minutes in an hour = time in minutes)

1 gram = 1,000 milligrams

1 gram = 1,000.000 micrograms

1 milligram = 1000 micrograms

1. A patient is having a blood transfusion. You suspect they are having an allergic reaction. Outline what you would do next?

2. Prior to theatre your patient is ordered a pre medication, however nothing is written on the patients drug chart. Outline what you would do next?

For the calculations below please show all your workings.

3. A child weighing 36kg is to have 15mg/kg/day of a specific medication. Calculate the amount of medication the child will require per day.

4. You are required to administer morphine to a baby. The order is for 0.04mg/kg/hour. If the baby weighs 5.9kg, how many mg of morphine can the baby have over the next hour?

5. A patient has been ordered 50mg of pethidine. If the stock strength of the pethidine is 100mg in 2mls, how many mls should be administered?

6. A patient is ordered 200mg of intravenous Ciprofloxacin. Stock strength on hand is 400mg in 200mls. Calculate the volume required?

7. During a cardiac arrest a patient is ordered a loading dose of 300mg Amiodarone. Stock strength is 150mg in 3mls. Calculate the volume required for administration.

8. Your patient is ordered 0.125mg or Digoxin. The stock strength is 250mcg in 1 tablet. Calculate the number of tablets required.

9. Your patient is ordered 75mg of oral Amoxil. Stock strength on hand is 125mg in 5mls. Calculate the volume required for administration.

10. Your patient is ordered morphine intravenously for chest pain. The order is for 1.5mg. If the stock strength is 10mg in 5ml, calculate the volume required.

11. Your patient is ordered 750mg of Ciprofloxacin orally. Stock strength is 500mg tablets. How many tablets should be given?

12. Your patient is ordered 600mls of Hartmans over 4 hours. Calculate the rate in mL/hour to be delivered by an intravenous pump.

13. Your patient is ordered 1.5 litres of NaCl to be given over 6 hours. Calculate the rate in ml/hour.

14. Your patient has been started on warfarin. The dose required is 8mg. Tablets come as 1mg, 2mg and 5mg. How many tablets are required, include their individual dosages.

15. Your patient is ordered 600mls of Hartmans to be given over 4 hours. The intravenous giving set you are using delivers 20drops per ml. Calculate the drip rate.

16. Your patient is ordered 1.4 Litres of NaCl to be given over 10 hours for dehydration. The giving set delivers 20 drops per ml. Calculate the drip rate.

17. Your patient is receiving 100ml/hr of solution for 1½ hours. How much fluid are they receiving?

18. Your patient is to be given 2 litres of Hartmans solution. The flow rate on the infusion pump is set to 160ml/hr. How long will it take for the infusion to complete?

19. Your patient has been ordered a 1L bag of Hartmans solution to run over 8 hours. The infusion has been running for 3 hour and 40 minutes and 700mls of the solution has been delivered. Assuming the drip set delivers 15 drops per ml; calculate how many drops per minute are required for the remainder of the solution to run in on time.

20. Your patient is ordered 5% Albumin to be given over 6 hours. One bottle of albumin has 500mls. Calculate the flow rate to program into the infusion pump.

21. What drop rate is required to deliver 500ml of whole blood over a 4 hours period assuming the giving set delivers 15 drops per ml?

22. Your patient is currently receiving an IV infusion of NaCL which has been running at a rate of 40 drops/min via a 15 drop per ml giving set for 6 hours. Calculate the volume of fluid that has been administered in the 6 hour period.

23. Your patient is ordered a heparin infusion to run at 200 units/hr. The solution is 10,000 units of heparin in 25 mls of NaCL.

a. Calculate how many units are in each ml.

b. Calculate how many mls/hr are required to deliver the prescribed dose?

24. Dobutamine is ordered as a continuous infusion at 500mcq/min. The infusion is made up with 1gm of Dobutamine mixed in 50ml of Dextrose.

a. Calculate the concentration of dobutamine in the infusion solution in mcg/ml.

b. Calculate the mcg/min delivered in each ml/hr.

c. Calculate the mls/hr required to be programmed into the pump to deliver the ordered dose.